



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
[www.uspto.gov](http://www.uspto.gov)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/757,754	01/15/2004	Andrew P. Tybinkowski	56230-604 (ANAK-242)	4287
7590	05/25/2005			EXAMINER THOMAS, COURTNEY D
Toby H. Kusmer, Esq. McDERMOTT, WILL & EMERY 28 State Street Boston, MA 02109			ART UNIT 2882	PAPER NUMBER

DATE MAILED: 05/25/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/757,754	TYBINKOWSKI ET AL. 	
	<b>Examiner</b>	<b>Art Unit</b>	
	Courtney Thomas	2882	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 02 May 2005.
- 2a) This action is FINAL.                    2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-9, 11-17, 19 and 21-24 is/are pending in the application.
  - 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 1-9, 11-17, 19 and 21-24 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 15 January 2004 is/are: a) accepted or b) objected to by the Examiner.
 

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
    - a) All    b) Some \* c) None of:
      1. Certified copies of the priority documents have been received.
      2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
      3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
|  | 6) <input type="checkbox"/> Other: _____                                    |

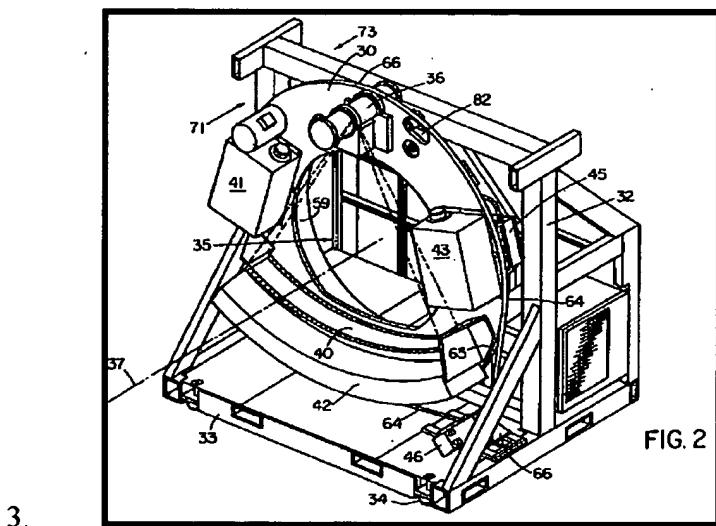
## **DETAILED ACTION**

## ***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action: .

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-9, 11-17, 19, and 21-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tybinkowski et al. (U.S. Patent 5,982,844) in view of Tybinkowski et al. (U.S. Patent 5,937,028) and Hass et al. (U.S. patent 4,239,969).



**Figure 2 – U.S. Patent 5,982,844 to Tybinkowski et al.**

4. As per claim 1, Tybinkowski et al. ('844) disclose a tomography scanner comprising: a base (33) a gantry supported on the base and including an outer, non rotating support ring (32) an inner rotatable component ring (30) supported for rotation on the support about a rotation axis of

the gantry; an X-ray source (36) and an X-ray detector (40). Tybinkowski et al. do not explicitly disclose:

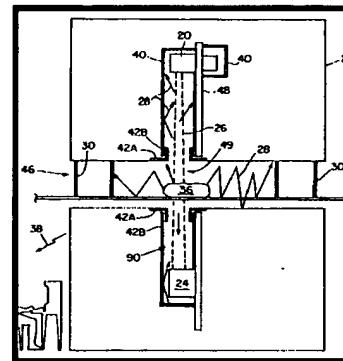
5.      a) a scanner comprising an X-ray containment shield enclosing the X-ray source and detector and secured to the rotatable component ring (30) for rotation with the component ring or
6.      b) a first and second, non-rotating X-ray containment tunnel extending from an open end to the rotating X-ray containment shield coaxial with the rotation axis of the gantry and extending from the rotating X-ray containment shield to an open end with the rotation axis of the gantry, respectfully and
7.      c) a continuous conveyor belt including a forward path extending through the tunnels and the gantry and a return path extending outside the tunnels and gantry.

[57]

**ABSTRACT**

In a computed tomography (CT) scanner, an X-ray shield is mountable to a gantry for absorbing randomly scattered X-ray radiation. The shield is rotatable with the gantry disk for regulating the emission of X-ray radiation near its source. The shield is preferably lined with an energy-absorbent material to provide safe energy levels in the environment external to the system. By minimizing the surface area of the shield, the present system results in significant weight reduction and ease of installation over prior shielding systems.

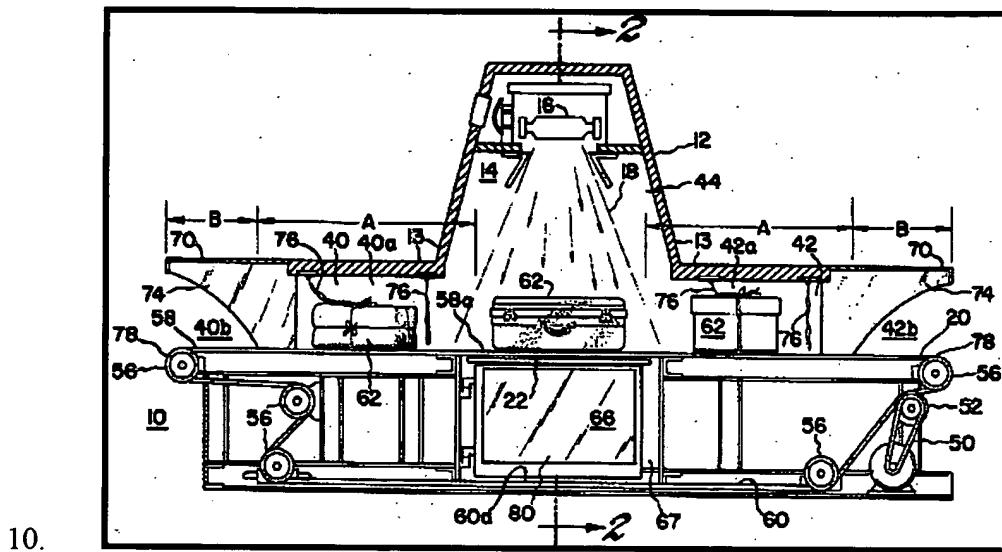
8.



Abstract & Fig. 2 – U.S. Patent 5,937,028 to Tybinkowski et al.

9.      Tybinkowski et al. ('028) disclose a tomography scanner comprising an X-ray containment shield (40) enclosing the X-ray source (20) and detector (24) and secured to a gantry for rotation therewith (see Abstract and Fig. 2 above). Tybinkowski et al. also disclose a first and second, non-rotating X-ray containment tunnel extending from an open end to the rotating X-ray containment shield coaxial with the rotation axis of the gantry and extending from the rotating X-ray containment shield to an open end with the rotation axis of the gantry,

respectfully (see 46). Tybinkowski et al. teach that such arrangement absorbs randomly scattered radiation, while reducing the need to line an entire housing with lead as in prior art systems (column 2, lines 26-37). Additionally, Tybinkowski et al. also teach a scanner employing X-ray absorbing elements within the scanner to further reduce radiation exposure to the surrounding areas (column 3, lines 17-27).



12. It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the apparatus of Tybinkowski et al. ('844), such that it incorporated **a)** an X-ray containment shield enclosing the X-ray source and detector and secured to the rotatable component ring for rotation with the component ring; **b)** a first and second, non-rotating X-ray containment tunnel extending from an open end to the rotating X-ray containment shield coaxial with the rotation axis of the gantry and extending from the rotating X-ray containment shield to an open end with the rotation axis of the gantry, respectfully and **c)** a continuous conveyor belt including a forward path extending through the tunnels and the gantry and a return path extending outside the tunnels and gantry. One would have been motivated to make such a modification for the purpose of absorbing randomly scattered radiation, while reducing the need to line an entire housing with lead as in prior art systems as suggested by Tybinkowski et al. ('028)-(see Abstract and Fig. 2 above; column 2, lines 26-37). Furthermore, one would have been motivated to provide a continuous conveyor belt as claimed for the purpose of minimizing the amount of material that interacts with X-ray transmission prior to reception by a detection element as suggested by Haas et al. (column 2, lines 38-41).

13. **As per claim 2,** Tybinkowski et al. as modified above, disclose a tomography scanner wherein the component ring includes a mounting face extending perpendicular to the rotation axis and the X-ray source, the detector and X-ray containment shield are secured to the mounting face of the component ring (see Figs. 1 and 2 above).

14. **As per claim 3,** Tybinkowski et al. as modified above, do not explicitly disclose a motor mounted on the support ring.

15. Tybinkowski et al. ('844) disclose a scanner wherein a motor (46) is mounted on the base (33) and is operatively connected to the component ring (30) through a belt (64) received in an outer circumferential groove of the component ring (see Figs. 6A, 6B).

16. It would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify the scanner of Tybinkowski et al. such that a motor was mounted on the support ring. One would have been motivated to make such a modification for the purpose of avoiding collision with the rotating component ring as implied by Tybinkowski et al.

17. **As per claims 4-7,** Tybinkowski et al. as modified above, disclose a tomography scanner wherein the detector is a solid state, two dimensional X-ray detector; the X-ray source provides cone beam radiation (see Figs. above) and further comprising a data acquisition system (42) and X-ray tube control systems (column 4, lines 27-33).

18. **As per claims 8 and 9,** Tybinkowski et al. as modified above, disclose a tomography scanner wherein the material absorbent of X-ray incident energy comprises lead (Tybinkowski et al. ('028) - column 3, lines 37-43).

19. **As per claims 11-17,** Tybinkowski et al. as modified above, disclose a tomography scanner wherein material absorbent of X-ray energy comprises lead and wherein open ends of the X-ray containment tunnels include curtains (30) of X-ray absorbent material (Tybinkowski et al. ('028) - column 3, lines 37-43) wherein the rotating X-ray containment shield includes an annular body defining diametrically opposed X-ray source and detector apertures.

20. **As per claims 17, 19 and 21-24,** Tybinkowski et al. as modified above, disclose a tomography scanner further comprising a conveyor system, (Tybinkowski et al. ('844) - 102;

Tybinkowski et al. ('028) - 32 supported by pulleys and at least one motor (not numbered) for supporting baggage (Tybinkowski et al. ('028) – 36).

***Response to Arguments***

21. Applicant's arguments with respect to claims 1-9, 11-17, 19 and 21-24 have been considered but are moot in view of the new ground(s) of rejection. In particular, claim 1 has been amended to further include the limitations of first and second non-rotating X-ray containment tunnels and a continuous conveyor belt having a forward path extending through the tunnels and a return path extending outside the tunnels and gantry. Tybinkowski et al. (U.S. Patent 5,982,844) and Tybinkowski et al. (U.S. Patent 5,937,028) are now modified in view of Hass et al. (U.S. patent 4,239,969) to meet the new limitations provided by Applicant's amendment.

***Conclusion***

22. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Art Unit: 2882

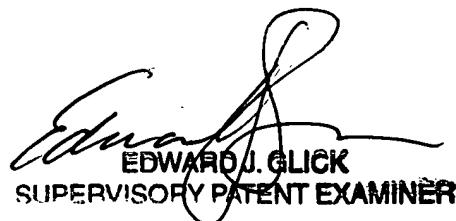
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Courtney Thomas whose telephone number is (571) 272-2496. The examiner can normally be reached on M - F (9 am - 5 pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ed Glick can be reached on (571) 272 2490. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Courtney Thomas  
Examiner  
Art Unit 2882

CT



EDWARD J. GLICK  
SUPERVISORY PATENT EXAMINER